Claims

1. Process for the catalytic reduction of sulphur dioxide from a gas mixture at least containing 10 vol.% of water, in which process the gas mixture is passed over a sulphur resistant hydrogenation catalyst in sulphidic form, at a space velocity of at least 2000 h^{-1}, in the presence of a reducing component, preferably at least partly consisting of hydrogen, in a molar ratio of reducing component to sulphur dioxide of more than 10 up to 100, at a temperature of 125°C to 300°C, followed by passing the gas mixture, after the said reduction, through a dry oxidation bed for the oxidation of sulphur compounds, more in particular hydrogen sulphide, to elemental sulphur.

2. Process according to claim 1, wherein the catalyst is supported on a carrier material having substantially no activity towards the Claus reaction and having at least one sulphidic hydrogenation component applied to the surface of said carrier material.

3. Process according to claim 2, wherein the said hydrogenation component is selected from the group of metals of Groups VIB, VIIB and VIII of the periodic table of elements.

4. Process according to claim 3, wherein the hydrogenation component is based on molybdenum, and/or tungsten and/or cobalt.

5. Process according to claim 4, wherein the hydrogenation component is a catalyst based molybdenum or tungsten on a silica support, preferably containing 0.1 to 50 wt.% of molybdenum or tungsten.

6. Process according to claims 2-5, wherein the carrier material is selected from the group of silica, α-alumina, silica alumina, zirconia, carbon (fibres), carbides, phosphates (such as aluminium phosphate).

7. Process according to claims 1-6, wherein the said space velocity is less than 12000 h^{-1}, preferably less than 10000 h^{-1}.

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8. Process for the removal of sulphur contaminants from gas mixtures, said process comprising the steps of

- converting part of the hydrogen sulphide into sulphur dioxide,
- subjecting the mixture to the Claus reaction in at least one catalytic reactor,
- subjecting the sulphur dioxide present in resultant gas mixture to a removal step using the process of any one of the claims 1-7,
- selectively oxidising the hydrogen sulphide present in the resulting gas mixture to elemental sulphur.

9. Process according to claim 8, wherein the said step of selectively oxidising is carried out in a dry oxidation bed.